

**WHAT IS CLAIMED**

1. In a soft start circuit that is configured for use with a DC-DC converter, wherein an input reference voltage is coupled to an error amplifier and to a soft start capacitor, and wherein a feedback resistor is coupled between an output node and said error amplifier, said error amplifier having its output coupled to a pulse width modulator (PWM), which has its output coupled through an inductor to said output node, to which an output capacitor referenced to ground is coupled, the improvement comprising:

a switch coupled between said soft start capacitor and said output node, said switch being open when said converter is enabled, and being closed when said converter is disabled, thereby effectively shorting said soft start capacitor to said output node, and precharging said soft start capacitor to the value of the output voltage at said output node.

2. For use with soft start circuit for a DC-DC converter, wherein an input reference voltage is coupled to an error amplifier and to a soft start capacitor, and wherein a feedback resistor is coupled between an output node and said error amplifier, said error amplifier having its output coupled to a pulse width modulator (PWM), which has its output coupled through an inductor to said output node, to which an output capacitor referenced to ground is coupled,

a method of controlling the operation of said soft

start circuit comprising the steps of:

(a) for an enabled condition of said converter decoupling said soft start capacitor from said output node; and

(b) for a disabled condition of said converter, coupling said soft start capacitor to said output node, and thereby precharging said soft start capacitor to the value of the output voltage at said output node.

3. A soft start circuit architecture comprising:

a buffer amplifier to which a reference voltage is coupled, said buffer amplifier having its output coupled to a soft start capacitor and to an error amplifier;

a pulse width modulator coupled to the output of said error amplifier;

an inductor coupling the output of said pulse width modulator to an output node to which an output capacitor is coupled;

a feedback resistor coupled between said output node and said error amplifier; and

a switch coupled between said soft start capacitor and said output node and being operative, when closed, to effectively short said soft start capacitor to said output node, and thereby precharge said soft start capacitor to the value of the output voltage at said output node.

4. The soft start circuit architecture according to claim 3, wherein said switch is open when said

converter is enabled.

5. A soft start circuit architecture comprising:

a buffer amplifier having a first input coupled to a switch, to which a reference voltage is coupled, said buffer amplifier having its output coupled to a soft start capacitor and to an error amplifier;

a pulse width modulator coupled to the output of said error amplifier;

an inductor coupling the output of said pulse width modulator to an output node to which an output capacitor is coupled;

a feedback resistor coupled between said output node and said error amplifier; and wherein

said switch is further coupled to said output node and being operative, for a first condition thereof, to connect said first input of said buffer amplifier to said output node and thereby cause said soft start capacitor to charge up to the output voltage at said output node and, for a second condition thereof, to disconnect said first input of said buffer amplifier from said output node and connect said first input of said buffer amplifier instead to said reference voltage.